

Notice of Allowability

Application No.

10/791,664

Examiner

Tuan N. Nguyen

Applicant(s)

IFFLAENDER, REINHARD

Art Unit

2828

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 06/23/2004.
2. ☒ The allowed claim(s) is/are 29-33 and 35-56.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date 06/23/2004
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☒ Interview Summary (PTO-413), Paper No./Mail Date 12/1/05
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____.

EXAMINER'S AMENDMENT

1. An examiner's amendment to the record appears below, to the amended claims 1, 4, 5 should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview on December 1, 2005 with Mr. Barry Lipsitz (Attorney for Applicant, Reg. No. 28637).

Claim 1-28: (Canceled)

Claim 29:

29. (Currently Amended) Pumping light source for laser-active media comprising:

an outer member enclosing a gas discharge medium, said outer member being optically transparent,

a first electrode acting as a cathode and having a first electrode end located within the outer member, the first electrode end being essentially cooled by thermal radiation,

a second electrode acting as an anode and having a second electrode end located within the outer member, ~~and~~

said outer member having a gas discharge section extending between the electrode ends facing one another, and

said pumping light source being operated with a gas discharge having a predominantly diffuse arc attachment at the first electrode proceeding from an areally extended surface area located at the first electrode end, said gas discharge generating pumping light exiting through said gas discharge section,

wherein the surface area has an extension greater than two thirds of an average cross-sectional surface area of the volume area at the first electrode end.

Claim 34: (Canceled)

Claim 36:

36. (Currently Amended) ~~Pumping light source as defined in claim 29,~~ Pumping light source for laser-active media comprising:

an outer member enclosing a gas discharge medium, said outer member being optically transparent,

a first electrode acting as a cathode and having a first electrode end located within the outer member, the first electrode end being essentially cooled by thermal radiation,

a second electrode acting as an anode and having a second electrode end located within the outer member,

said outer member having a gas discharge section extending between the electrode ends facing one another, and

said pumping light source being operated with a gas discharge having a predominantly diffuse arc attachment at the first electrode proceeding from an areally extended surface area located at the first electrode end, said gas discharge generating pumping light exiting through said gas discharge section,

wherein the extension of the first electrode between an electrode opening of the outer member and the first electrode end relative to the average cross section of the first electrode

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is such that the extension is greater than ten times the average cross section of the first electrode.

Claim 39:

39. (Currently Amended) ~~Pumping light source as defined in claim 29,~~ Pumping light source for laser-active media comprising:

an outer member enclosing a gas discharge medium, said outer member being optically transparent,

a first electrode acting as a cathode and having a first electrode end located within the outer member, the first electrode end being essentially cooled by thermal radiation,

a second electrode acting as an anode and having a second electrode end located within the outer member,

said outer member having a gas discharge section extending between the electrode ends facing one another, and

said pumping light source being operated with a gas discharge having a predominantly diffuse arc attachment at the first electrode proceeding from an areally extended surface area located at the first electrode end, said gas discharge generating pumping light exiting through said gas discharge section,

wherein:

material forming the first electrode end is provided with a dope additive leading during operation to a lower electrode operating temperature than in the case of the undoped material, and

in the first electrode the heat resistance between the first electrode end and the electrode opening is at least 10°C/W.

Claim 40:

40. (Currently Amended) ~~Pumping light source as defined in claim 29,~~ Pumping light source for laser-active media comprising:

an outer member enclosing a gas discharge medium, said outer member being optically transparent,

a first electrode acting as a cathode and having a first electrode end located within the outer member, the first electrode end being essentially cooled by thermal radiation,

a second electrode acting as an anode and having a second electrode end located within the outer member,

said outer member having a gas discharge section extending between the electrode ends facing one another, and

said pumping light source being operated with a gas discharge having a predominantly diffuse arc attachment at the first electrode proceeding from an areally extended surface area located at the first electrode end, said gas discharge generating pumping light exiting through said gas discharge section,

wherein:

the electrode operating temperature of the first electrode end is lower than the melting temperature of the material of the electrode end, and

in the first electrode the heat resistance between the first electrode end and the electrode opening is at least 10°C/W.

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Claim 41:

41. (Currently Amended) ~~Pumping light source as defined in claim 29,~~ Pumping light source for laser-active media comprising:

an outer member enclosing a gas discharge medium, said outer member being optically transparent,

a first electrode acting as a cathode and having a first electrode end located within the outer member, the first electrode end being essentially cooled by thermal radiation,

a second electrode acting as an anode and having a second electrode end located within the outer member,

said outer member having a gas discharge section extending between the electrode ends facing one another, and

said pumping light source being operated with a gas discharge having a predominantly diffuse arc attachment at the first electrode proceeding from an areally extended surface area located at the first electrode end, said gas discharge generating pumping light exiting through said gas discharge section,

wherein the first electrode end consists of tungsten doped ~~with a~~ with at most 5% by weight of an oxide of a rare earth material ~~with~~ having a work function for electrons smaller than that of pure tungsten.

Claim 42:

42. (Currently Amended) ~~Pumping light source as defined in claim 41, wherein~~ Pumping light source for laser-active media comprising:

an outer member enclosing a gas discharge medium, said outer member being optically transparent,

a first electrode acting as a cathode and having a first electrode end located within the outer member, the first electrode end being essentially cooled by thermal radiation,

a second electrode acting as an anode and having a second electrode end located within the outer member,

said outer member having a gas discharge section extending between the electrode ends facing one another,

said pumping light source being operated with a gas discharge having a predominantly diffuse arc attachment at the first electrode proceeding from an areally extended surface area located at the first electrode end, said gas discharge generating pumping light exiting through said gas discharge section, and

the first electrode end ~~consists~~ consisting of tungsten doped with at least 0.1% by weight of lanthanum.

Claim 44:

44. (Currently Amended) ~~Pumping light source as defined in claim 29, wherein~~ Pumping light source for laser-active media comprising:

an outer member enclosing a gas discharge medium, said outer member being optically transparent,

a first electrode acting as a cathode and having a first electrode end located within the outer member, the first electrode end being essentially cooled by thermal radiation,

a second electrode acting as an anode and having a second electrode end located within the outer member,

said outer member having a gas discharge section extending between the electrode ends facing one another,

said pumping light source being operated with a gas discharge having a predominantly diffuse arc attachment at the first electrode proceeding from an areally extended surface area located at the first electrode end, said gas discharge generating pumping light exiting through said gas discharge section,

the first electrode ~~has~~ having a holding section passing through the electrode opening, said holding section consisting of a material wettable by the material of the outer member, and ~~that~~

an end section supporting the first electrode end ~~adjoins~~ this adjoining said holding section.

REASON FOR ALLOWANCE

Allowable Subject Matter

2. The following is an examiner's statement of reasons for allowance, with respect to claims 29, 36, 39, 40, 41, 42, 44 the references of the record fail to teach or suggest:

Claim 29:

A pumping light source for laser-active media comprising: an optically transparent outer member enclosing a gas discharge medium, having a first cathode electrode end and a second anode electrode end located within the outer member having a gas discharge section extending between the electrode ends facing

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one another, where the gas discharge pumping light exiting through said gas discharge section, where the pumping light source being operated with a gas discharge having a predominantly diffuse arc attachment at the first electrode proceeding from an areally extended surface area located at the first electrode end, and the first electrode end being essentially cooled by thermal radiation, wherein the surface area has an extension greater than two thirds of an average cross-sectional surface area of the volume area at the first electrode end.

Claim 36:

wherein the extension of the first electrode between an electrode opening of the outer member and the first electrode end relative to the average cross section of the first electrode is such that the extension is greater than ten times the average cross section of the first electrode.

Claim 39:

wherein: material forming the first electrode end is provided with a dope additive leading during operation to a lower electrode operating temperature than in the case of the undoped material, and

in the first electrode the heat resistance between the first electrode end and the electrode opening is at least 10°C/W .

Claim 40:

Wherein: the electrode operating temperature of the first electrode end is lower than the melting temperature of the material of the electrode end, and

in the first electrode the heat resistance between the first electrode end and the electrode opening is at least 10°C/W .

Claim 41:

wherein the first electrode end consists of tungsten doped with at most 5% by weight of an oxide of a rare earth material having a work function for electrons smaller than that of pure tungsten.

Claim 42:

Wherein the first electrode end consisting of tungsten doped with at least 0.1% by weight of lanthanum.

Claim 44:

Wherein the first electrode having a holding section passing through the electrode opening, said holding section consisting of a material wettable by the material of the outer member, and an end section supporting the first electrode end adjoining said holding section.

3. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Communication Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tuan N Nguyen whose telephone number is (571) 272-1948. The examiner can normally be reached on M-F: 7:30 - 4:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Harvey Minsun can be reached on (571) 272-1835. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Tuan N. Nguyen


